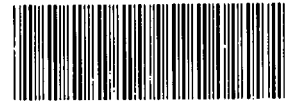




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466



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DEC 2 1992

Ref: 8HWM-FF

Mr. Gary Baughman
Colorado Department of Health
4210 E. 11th Ave.
Denver, CO 80220

Re: Draft TM Vadose Zone
Investigation for OU 4

Dear Mr. Baughman:

In general, this vadose zone investigation program included the appropriate techniques for characterization of the vadose zone at the solar ponds. However, EPA is concerned about the following: 1) failure of this program to present a basis for the number and location of the proposed monitoring stations; and 2) lack of coordination between this program and the overall clean-out project of the solar ponds. In the interest of moving forward with the program, EPA recommends conditional approval of this document assuming DOE properly addresses EPA's attached comments.

Please do not hesitate to contact Arturo Duran of my staff at (303) 294-1080 with any questions you may have.

Sincerely,

Martin Hestmark, Manager
Rocky Flats project

Attachment

cc: Richard Schassburger, DOE
Frazer Lockhart, DCE
Scott Surovchak, DOE
Randy Ogg, EG&G
Harland ainscough, CDH

A-DU04-000430

ADMIN RECORD

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1.0 GENERAL COMMENTS

1. Overall this vadose zone investigation program included the appropriate techniques for characterization of the vadose zone at the solar ponds. However, the program failed to provide a basis for the number and location of the proposed monitoring stations. EPA feels that this is crucial to the success of the program. A more thorough Data Quality Objective (DQO) development process which includes a clear statement of the question(s) to be answered and justifies, either statistically or otherwise, the field investigation's scope needs to be performed and presented. This will ensure that the amount of the data gathered and its quality are adequate and appropriate to meet the program objectives. The following bullets describe some of the information that should be provided.
 - Justification for selecting 16 of the 49 borehole locations proposed in the phase I RFI/RI work plan, for this vadose zone investigation. The reason for choosing the 16 locations should be directly to the objective of this study. Specifically the locations should be related to the description of potential vadose zone materials that must be investigated listed on pages 2-6 and 2-7 of the vadose zone memo.
 - The 25 locations for the Guelph permeater tests should be correlated to the four types of shallow soils known to exist in the OU 4 area. These four soil types are listed on page 2-12 of the vadose zone memo. In addition, a map illustrating the Guelph permeater locations should be provided.
 - Further explanation of how the Guelph permeater data will be used to guide the placement of the double ring infiltrameters. Page 2-13 states that only areas of low variability will be chosen. The criteria for determining what Guelph permeater results indicate low variability should be provided.
 - Three areas of OU 4 have been chosen for the soil gas survey. Two of the areas, original earthen ponds and upgradient area are not illustrated on Figure 2-2. These areas should be shown so that sample location choice can be verified.
2. There appears to be a lack of coordination between this program and the overall clean-out project of the solar ponds. This program has been designed assuming complete removal of pond water and sludge. To date, there has not been a final decision made on the disposition of the sludge. Therefore, changes in the number and location of the proposed monitoring stations may be needed. This program

needs to contain sufficient flexibility to adjust to future management decisions on the overall solar ponds programs.

3. The schedule for implementation of this vadose zone investigation is not provided. Instead page 3-1 states that the actual schedule will be incorporated into the OU 4 phase I schedule when the tech memo is approved. For consistency, a preliminary version of the schedule should be included in this tech memo.
4. The final RFI/RI work plan for OU 4 states that specific vadose zone techniques may be tested in a pilot program. A test program is not mentioned in this technical memorandum.

2.0 SPECIFIC COMMENTS

1. Page 2-10, Section, Paragraph 3. Organic carbon content and cation exchange capacity will only be measured in samples from significant hydrogeologic units. A definition of significant hydrogeologic unit should be provided.

Rationale: As currently written, the vadose zone memo does not provide enough information to direct the field sampling crew.

2. Page 2-12, Section 2.2.6, Paragraph 2. The BAT® system of borehole permeability tests will be used when units of concern are encountered in each borehole. The definition of units of concern should be listed.

Rationale: The term unit of concern is too vague to be used to direct the field effort.

3. Page 2-18, Section, Paragraph 4. No information is provided which describes how an appropriate suite of gas analytes will be chosen during the initial stages of the soil gas survey. It would seem more appropriate to initially analyze for a wide spectrum of analytes and then provide a rationale for eliminating analytes. Further explanation of the soil gas analytes is required.

Rationale: Soil gas analytes should be specified prior to starting field work so that reviewers have an opportunity to check the analyte list.

4. Figure 2-2. This figure illustrates the locations of the vadose zone investigations. However, none of the 25 Guelph permeater locations are illustrated and 2 of the double ring infiltrometer locations are. This does not make sense because double ring infiltrometer locations will be based on the Guelph permeater results. Figure 2-2 should be corrected to show Guelph permeater rather than double ring

infiltrrometer locations.

Rationale: The figure should illustrate only those sample locations that are known prior to the beginning of field work.